

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WALTER HENRY BERRYMAN

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Appeal 2009-002060  
Application 10/694,888  
Technology Center 1700

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Decided:<sup>1</sup> June 30, 2009

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Before PETER F. KRATZ, JEFFREY T. SMITH, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Statement of the Case

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1-4, 6, 7, and 9-12, all of the pending claims.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6.

Appellant's invention relates to a process for manufacturing a thick film circuit on a titanium or titanium-alloy substrate. (Spec. 2). Claim 1 is illustrative:

1. A process for manufacturing a thick-film circuit having at least one element on a titanium or titanium-alloy substrate to substantially prevent formation of a bent substrate comprising the steps of:

applying a glassy dielectric layer upon at least one surface of said substrate, the composition and layer thickness of which are selected according to its temperature coefficients and Young's modulus to substantially prevent bending of the substrate after it has cooled to ambient temperature;

firing said glassy dielectric layer in an oxidizing atmosphere; and

forming at least one element of said thick-film circuit upon said dielectric layer; wherein the composition and layer thickness of the at least one element is selected according to its temperature coefficient and Young's modulus to substantially prevent bending of the substrate after it has cooled to ambient temperature.

Appellant appeals the Examiner's rejections as set forth below:

Claims 1, 2, 4, and 9-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Zimmerman, DE383598 A1, published May 23, 1990.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Zimmerma, and Sreeram, U.S. Patent No. 6,551,720 B2, issued April 22, 2003.

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<sup>2</sup> An oral hearing was held for this appeal on May 13, 2009.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Zimmerman and Lindson, U.S. Patent No. 2,959,503, issued November 8, 1960.<sup>3</sup>

The dispositive issue before us is whether the Examiner has established that Zimmerman describes or suggests applying a glassy dielectric layer upon at least one surface of said substrate, wherein the composition and layer thickness are selected according to its temperature coefficients and Young's modulus to substantially prevent bending of the substrate after it has cooled to ambient temperature, as recited in claim 1. We answer this question in the negative. Therefore, WE REVERSE.<sup>4</sup>

The Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). In order to establish a prima facie case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988

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<sup>3</sup> The Examiner has inadvertently included cancel claim 8 in this rejection. (See Ans. 4, Final Rejection, mailed October 25, 2006, page 2, and App. Br. 2).

<sup>4</sup> We select independent claim 1 as representative of the rejected subject matter. Separately rejected claims 3 and 6 depend from independent claim 1.

(Fed. Cir. 2006) (quoted with approval in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)).

The Examiner found that Zimmerman teaches a method for producing electronic circuits for thick-films in sensors in conjunction with a strain-gauge built onto the substrate. The Examiner acknowledged that Zimmerman fails to specifically recite controlling bending by controlling processing, parameters of thickness and coefficient of expansion. (Ans. 3). The Examiner asserts that Zimmerman does disclose the processing parameters to achieve the desired result which is all that is necessary to meet the recited claimed limitations. The Examiner also found that Zimmerman depicts in the drawings a final product that does not suffer from distortion/bending or warping. The Examiner further found that the specification does not recite or even hint at the distortion/bending or warping phenomenon. (Ans. 3). The Examiner relied upon Sreeram for describing a titanium substrate coated with a lead-based glaze. The Examiner relied upon Lindson for describing coating the reverse side of a titanium substrate with a glass-ceramic composition to prevent oxidation of the titanium. (Ans. 4-5).

We agree with Appellant that the Examiner has not established a prima facie case of obviousness. Appellant contends that the Examiner has not established that Zimmerman describes or suggests applying a glassy dielectric layer upon at least one surface of said substrate, wherein the composition and layer thickness are selected according to its temperature coefficients and Young's modulus to substantially prevent bending of the substrate after it has cooled to ambient temperature, as recited in claim 1. (App. Br. 7-8). The Examiner has not pointed to specific portions of

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Zimmerman that discuss the parameters of thickness and coefficient of expansion and their effect on the resulting product. The Examiner has not identified objective evidence that a person of ordinary skill in the art would have been motivated by the disclosure of Zimmerman to arrive at the claimed invention or how a person of ordinary skill in the art would go about substantially preventing bending of a substrate after it has cooled to ambient temperature as required by claim 1. The Examiner did not rely upon Sreeram or Lindson for describing the parameters of thickness and coefficient of expansion of a substrate.

For the foregoing reasons and those presented in Appellant's Briefs, the rejections of claims 1-4, 6, 7, and 9-12 under 35 U.S.C. § 103(a) are reversed.

**ORDER**

The Examiner's decision rejecting claims 1-4, 6, 7, and 9-12 is reversed.

**REVERSED**

PL Initial:  
sld

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